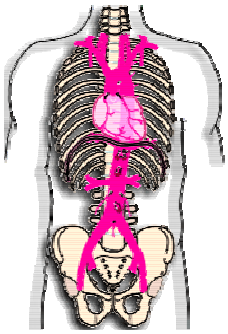
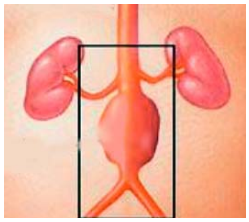
Abdominal Aortic Aneurysm (AAA)

What is an abdominal aortic aneurysm (AAA)?



The aorta is the largest blood vessel in the body. It leads from the heart through the chest and diaphragm to the lower abdomen. There, it divides into the major arteries to the legs. Along the way it supplies blood to all the organs of the body.

The portion of the aorta that lies in the abdomen is about one and a half inches wide. In some people, it gradually swells (dilates) and may balloon to four or five times its normal size. This dilation is called an aneurysm.

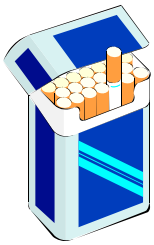


As it swells, the aortic wall weakens and may eventually burst, or rupture. Sudden ruptures often end in death. Abdominal aortic aneurysm (AAA) has become more common, particularly in older adults.

How does it occur?

Atherosclerosis is the most common cause of AAA. Atherosclerosis, or "hardening of the arteries," occurs when fatty substances such as cholesterol build up in the artery wall, damaging it. The muscular wall of the aorta weakens and begins to bulge. High blood pressure may speed up the weakening, but it is not the cause.

Aneurysms tend to run in families. There is a strong relationship between AAA and cigarette smoking. Aneurysms in smokers expand and weaken faster than do those in nonsmokers. Smokers die from ruptured aneurysms four times more often than nonsmokers.



What are the symptoms?

AAA may not cause symptoms for a long time. There may be an occasional mild abdominal ache, back pain, or groin pain, but most people have very few complaints. Sudden, very severe abdominal or back pain may suggest rupture of the aorta. When that happens you need immediate medical attention.

How is it diagnosed?

Most abdominal aortic aneurysms are diagnosed by a doctor during a routine exam. AAA can be felt as a tumorlike mass that pulses with each heartbeat. Once discovered, its size must be determined because risk of rupture is directly related to how large it is.

Abdominal ultrasound examination is an easy and accurate way to measure the size of an aneurysm. It can measure both the degree of dilation and the length or extent of the aneurysm. Abdominal x-rays may be used, but are not as accurate in measuring size.

How is it treated?

Aneurysms less than 4 cm in diameter are not dangerous but need checking from time to time. If you are in otherwise good health, surgery is usually considered for aneurysms greater than 5 cm or that are causing symptoms. Whether surgery should be done for aneurysms between 4 cm and 5 cm and that cause no symptoms is open to question.

If it is not an emergency, repair of an AAA has a low risk, few complications, and quick recovery. The surgeon opens the abdomen, removes the aneurysm, and replaces it with a woven Dacron graft (patch). The hospital stay is usually less than 10 days and recovery is usually complete in 4 to 6 weeks.

Emergency repair of a leaking or ruptured AAA is quite another matter. These emergency operations often have complications, a longer recovery time, and a high death rate.

A new method, still experimental and available in only a few medical centers, has been developed for the repair of AAA. This method, called endovascular grafting, involves inserting a catheter (tube) through a groin artery into the abdominal aorta. At the tip of the tube is a deflated balloon covered by a tightly wrapped Dacron graft. When properly positioned, the balloon is inflated and the graft opens. At each end of the graft are devices that secure it to the inner wall of the aorta. This graft bridges the aneurysm and removes the danger of rupture. This method is currently available only for nonemergency repair. Your doctor will help you determine if this procedure is available and right for you.

What are the results of surgery for AAA?

Successful surgery for AAA usually results in full recovery. Any new abdominal symptoms should be quickly reported to your doctor. Abdominal aneurysms generally do not recur, and people with AAA are not particularly at greater risk from aneurysms in other locations. Your doctor will discuss with you any needed lifestyle changes such as quitting smoking. Medicines for high blood pressure may need to be continued.

Written by Donald L. Warkentin, MD.